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ABSTRACT

This document, prepared by the Western Interstate Commission for Higher Education, presents six policy recommendations and implementation strategies to state and higher education leaders. This agenda for the 21st century is suggested to help higher education serve the needs of a multicultural society in a global and technologically oriented economy. Recommended are: (1) statewide strategic agendas that identify campus responsibilities and are supported by financial policies and performance accountability standards; (2) higher education collaboration with the public sector, state government, and the private sector to agree on priority research needs; (3) a higher education commitment to undergraduate curriculum reform that will prepare graduates for the new century; (4) college and university responsibility for leadership roles that demonstrate that racial and ethnic diversity are institutional, social, and economic assets; (5) use of technology for instruction, delivering education, research, and campus management; and (6) a faculty commitment to address the goals of the new higher education agenda, and institutional policies and work environments that encourage this commitment. Appended are two rosters listing the individuals involved in this project. (Contains approximately 70 references.) (CH)

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HIGHER
EDUCATION
*and the Economy of the West*

## *Policy Recommendations*

# Meeting Economic and Social Challenges

## A Strategic Agenda for Higher Education

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TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

*Policy Recommendations*

# Meeting Economic and Social Challenges:
## A Strategic Agenda for Higher Education

**Higher Education and the Economy of the West**

**Western Interstate Commission for Higher Education**
**P.O. Drawer P, Boulder, Colorado 80301-9752**

*Partial financial support was provided by The Ford Foundation*

This is a report of the policy recommendations for the WICHE project "Higher Education and the Economy of the West." The Commissioners believe that these recommendations must be implemented if higher education is to meet aggressively the challenges posed by rapid changes in the economic structure and character of our society.

The project, partially funded by The Ford Foundation, has been an examination of the broad relationship between higher education and the economy and the ways in which higher education in the WICHE states must change in order to be more responsive to the needs of the region in the 1990s and beyond.

The report was prepared by the Office of the Research and Policy Analysis of the Western Interstate Commission for Higher Education (WICHE). Comments on the report should be addressed to Judith I. Gill, Director, Office of Research and Policy Analysis, WICHE, P.O. Drawer P, Boulder, CO 80301-9752, (303) 541-0224.

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# FOREWORD

The recommendations in this policy report present a dramatic challenge to state and higher education leaders working to create a system of higher education that is responsive to the needs of a global and technologically oriented economy and multicultural society. A challenge we believe must be accepted.

This project has been an exciting one for WICHE. The Commissioners, representing 16 western states, determined the project agenda, particularly its policy focus. Their significant involvement in project activities represents their commitment to the need for dramatic and comprehensive change for higher education.

The project was directed by Judith I. Gill, director of research and policy analysis. Robin Etter Zúñiga and Virginia L. Golder, research associates, were the primary project researchers. Each had lead responsibility on project activities, wrote working papers, and contributed significantly to this report. Paul Albright, director of communications and Deborah Evans, project consultant, wrote working papers #4 and #5 and provided editorial assistance throughout the project. Secretaries Cherie Pedersen, Kelly Zweifel, and Denise Tregay provided significant staff support.

The project benefited greatly from the advice and involvement of many individuals. Dennis Jones, president, National Center for Higher Education Management Systems, and Harold Enarson, president emeritus of The Ohio State University and WICHE senior adviser, worked with project staff throughout the two years providing new ideas and creative solutions to the issues confronting higher education. Dennis Jones and Stephen M. Lilly, dean, College of Education, California State University, San Marcos, made significant contributions to this report. Project advisers also included: Frank C. Abbott, WICHE senior adviser; Patrick Callan, director, California Higher Education Policy Center; Don Habbe, 1992 WICHE visiting scholar and vice president for academic affairs, University of Montana; Jere Mock, program director, WICHE Special Projects; and Jackie Spears, co-director, Rural Clearinghouse for Education and Development, Kansas State University.

Special knowledge on the relationship between higher education and the economy was provided by a select group of "frontier thinkers" (Appendix A). The information from these interviews greatly influenced the development of the project's recommendations. We thank them and the many individuals (Appendix B) who provided insightful comments on draft recommendations.

The Ford Foundation provided partial financial support for this project. We are especially appreciative of the support and encouragement of Peter Stanley, president, Pomona College, and formerly director, education and culture for The Ford Foundation.

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# EXECUTIVE SUMMARY

Colleges and universities always have played an important role in the economy. Through their tripartite functions — teaching (knowledge transfer), research (knowledge discovery), and public service (knowledge application) — higher education institutions have educated the workforce, developed much of the nation's technology innovation, and provided leadership on important policy decisions.

Furthermore, higher education's contribution to the economy is not limited to economic development, workforce training, or applied research and technology transfer. Higher education's economic importance also is measured by its intrinsic value — the broader social benefits accrued from the college or university experience.

But rapid economic, social, and demographic changes, and limited fiscal resources place new and additional demands on higher education. These demands require state and higher educational leaders to rethink current state policies and practices affecting colleges and universities.

The first task is to identify and prioritize state, local, and national needs that can be addressed by higher education; to determine funding resources; and to specify the ways higher education will be held accountable for the wise use of state dollars in the achievement of stated goals.

Second, everyone must understand that these urgent and complex needs cannot be met by higher education alone. All sectors — the public schools, government, business and industry, communities — must collaborate to address critical needs. In the absence of new funding to address emerging economic problems, collaboration is more important than ever.

Third, colleges and universities must improve the quality of educational experiences so that students (1) become critical thinkers, able to understand new concepts and adapt to new learning environments; (2) understand and appreciate people from different ethnic or racial backgrounds; and (3) gain exposure to international education, including foreign language courses and study abroad. To achieve these ends, teaching approaches must actively involve students in learning. The curriculum must embrace multicultural and international perspectives. Campuses must investigate new strategies, including the use of telecommunications, for broadening access to educational programs, particularly for the "new clientele" (students over age 25, attending part-time, and/or from racially or ethnically diverse backgrounds).

Finally, state and higher education leaders must recognize that faculty are the key to change. Faculty must be responsive to the new social and economic challenges, but they also must be given a clear understanding of campus and state priorities, and these priorities must be supported by campus policies and practices.

## PROJECT COMPONENTS

Three primary assumptions guided the development of the WICHE project on Higher Education and the Economy in the West:

1. The definition of higher education's contribution to the economy must be broadened;
2. A change in state policies can serve to strengthen the relationship between higher education and the economy;
3. Action taken by states and their colleges and universities is limited by the current austere financial climate, and because of fiscal limitations, cooperation and differentiation among institutions are more important than ever before.

The WICHE Commissioners, representing 16 western states, determined the project agenda, particularly its policy focus. While the Commissioners adopted a regional policy perspective for this project, they also understood that blanket recommendations are not possible or practical. Rather, general direction and insights on regional changes should play a role in determining a state's higher education agenda.

Five working papers serve as a foundation for the recommendations presented in this policy report.

- *A Region of Contrasts: An Educational and Economic Profile of the West (Working Paper #1)* is a presentation and analysis of demographic, workforce, and educational data for 16 western states.
- *Exploring the Relationship: A Survey of the Literature on Higher Education and the Economy (Working Paper #2)* is a survey of recent literature on the relationship between higher education and the economy and a commentary on how this relationship can be enhanced.
- *The Higher Education-Economy Tie: A Sampling of Exemplary Programs in the West (Working Paper #3)* is a review and analysis of more than 30 exemplary programs in the West that illustrate higher education's contribution to the economy.
- *Insights on the Higher Education-Economy Relationship: Interviews with the Stakeholders (Working Paper #4)* is a summary of interviews with a group of knowledgeable and experienced participants and observers of education, economic, and governmental systems.
- *Joined or Unconnected? A Look at State Economic Development and Higher Education Plans (Working Paper #5)* is a summary and analysis of the most recent state higher education master plans and economic development plans in the 16 WICHE states.

This report, *Meeting Economic and Social Challenges: A Strategic Agenda for Higher Education, Policy Recommendations*, charts a direction for higher education if it is to meet the needs of a new economy. The report presents project conclusions and a series of recommendations from the Commission (see below) directed toward state governments and institutional leaders. Included in the report, as well, are policy option discussions, implementation issues, and examples of states and institutions currently undertaking the recommended policy changes.

## WICHE RECOMMENDATIONS

> Preamble: Higher education must prepare to meet aggressively the challenges posed by rapid changes in the economic structure and character of our society. WICHE believes that the following recommendations must be implemented if these challenges are to be met. The complexity of issues to be addressed and the limitations of state resources require that leaders of higher education and its stakeholders work collaboratively to build a statewide strategic agenda for higher education. Difficult decisions on the use of restricted resources will be needed. These decisions should be made within the context of higher education's long-term role in the economy: higher education is the state's most important investment in the future.

**Recommendation 1.** States must develop a statewide vision for higher education. The vision should be embodied in a strategic agenda that signals a new statewide perspective for higher education. Campus roles and missions, funding policies and priorities, and accountability requirements should be consistent with the goals of the strategic agenda.

1.1 The strategic agenda should identify campus responsibilities. Institutions, coordinating/governing boards, and legislators should ensure that institutional role and mission statements are consistent with these responsibilities.

1.2 Higher education finance policies and procedures must support the goals of the strategic agenda.

1.3 A new approach must be taken to higher education accountability consistent with identified priorities, expectations, and indicators of successful performance. Statewide higher education boards must be accountable for higher education's performance in addressing the new agenda and preparing reports on their findings.

State and higher education policymakers must work with regional and professional accrediting associations to promote standards consistent with the goals of a higher educational system that is responsive to the new global and technologically oriented economy and multicultural society.

**Recommendation 2.** State legislators and campus leaders must make a commitment to greater collaboration among higher education, the public sector, state government, and the private sector. State legislators and campus leaders must provide incentives and rewards for collaborative activity.

2.1 Higher education leaders and its stakeholders must agree on the state's priority research needs. Campus leaders must encourage and support faculty activity in these areas. Higher education must demonstrate its commitment to research activities in these priority areas.

2.2 Higher education must view campus-wide involvement with public schools, including teacher preparation programs, as its most important collaborative program. State governing boards and legislatures must articulate their expectations of higher education's involvement with the public schools. Higher education funding should be partially dependent on demonstrating accountability in this area.

**Recommendation 3.** Higher education must make a stronger commitment to undergraduate curriculum reform. Reform efforts must include changes that are critical to preparing graduates for the emerging global and technologically oriented economy and multicultural society.

3.1 Faculty must engage students as active participants in life-long learning. Colleges and universities must emphasize a rigorous and integrated curriculum, that blends liberal arts with vocational, technical, and professional education. Higher education must demonstrate progress in meeting these goals.

3.2 The global economy requires institutions to infuse an international perspective into the curriculum. States and institutions must expand opportunities for students and faculty to develop international expertise and experience. Higher education must demonstrate progress in meeting these goals.

3.3 Higher education must be responsive to the educational needs of its new clientele[1] and reduce the barriers to the full participation of life-long learners. Progress in meeting the goals of access, retention, and student success must be demonstrated.

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[1] Higher education's new clientele includes: life-long learners, place-bound students, part-time students, working adults, re-entry adults, individuals in rural communities, and members of underrepresented racial and ethnic groups.

**Recommendation 4.** Colleges and universities have a responsibility to take a leadership role in demonstrating that racial and ethnic diversity is an institutional, societal, and economic asset by fostering successful multicultural environments. Campuses must develop and implement strategic plans for diversity, and demonstrate progress in meeting these goals.

**Recommendation 5.** Efficient and effective use of technology for instruction, educational delivery, research facilitation, and campus management must become a state priority. States and institutions should develop strategic long-term plans and provide funding for the use of new education technologies. Barriers to the increased use of technology, including disincentives created by traditional faculty reward and promotion policies and state funding formulas, must be removed. Higher education must demonstrate progress in meeting these goals.

**Recommendation 6.** The global economy places new demands on higher education, and this requires a renegotiation of faculty roles. Faculty must make a commitment to addressing the goals of the new higher education agenda, and institutional leaders must provide a policy and work environment that encourages this commitment and participation. Higher education must demonstrate that faculty assignments and responsibilities are consistent with campus roles and missions and support the goals of the strategic agenda.

6.1 Professional development programs must be offered to provide faculty with the skills and knowledge to (1) understand the educational needs of the new clientele, (2) develop new curriculum and teaching strategies, and (3) learn to use new technologies.

6.2 Faculty hiring, review, and promotion policies must be consistent with campus roles and missions and support the goals of the strategic agenda.

## AN AGENDA FOR ACTION:

### Developing a Statewide Vision of Higher Education's Role in the Economy and Society of the 21st Century

*Recommendation 1*

*States must develop a statewide vision for higher education. The vision should be embodied in a strategic agenda that signals a new statewide perspective for higher education. Campus roles and missions, funding policies and priorities, and accountability requirements should be consistent with the goals of the strategic agenda.*

The American system of higher education is the envy of most nations. Yet criticisms of this system are many, and the challenges faced by higher education leaders are enormous.

Critics charge that higher education's curricula do not provide students with adequate writing and critical thinking skills. Many blame this problem on faculty members who appear more invested in research and other professional pursuits than in teaching and service.

Colleges and universities are faulted for conducting "turf wars" over program offerings. Rather than building on their own particular strengths and serving the needs of unique student groups, many four-year campuses want to offer the same "prestige" academic programs and compete for the same students. The operative word for relationships among campuses is frequently competition, not cooperation.

Some have accused higher education of formulating state master plans without input from elementary and secondary education (K-12), business and industry, state and local government leaders. The charge is that higher education talks to itself and does not involve the public in developing its goals and objectives.

But while critics comment, the challenges to higher education mount. Campuses are challenged to be all things to all people. Efforts to develop more focused missions frequently are thwarted because of pressures from special interest groups or because of a need to maintain revenue-producing programs.

Maintaining quality systems of higher education lead to significant and frequent increases in student tuition and fees to fill the gap between state appropriations and campus funding requirements. In many state appropriation acts, higher education funding is the budget balancer, because colleges and universities have another source of revenue (tuition) while other state-funded programs have entitlements or are perceived as addressing more pressing and immediate social needs.

Competitive pressures from non-academic sectors require that campuses pay market salaries for faculty in high demand fields. The high salaries of assistant professors in computer science, business, and engineering, and lower salaries of full-professors in English, political science, and education create significant challenges to campus leadership.

Criticisms and challenges are pulling higher education in many directions — some would say to the detriment of quality education. Everyone, including and especially higher education leaders, wants a quality system of higher education that can meet the challenges of the 21st century. But the challenges cannot be met without dramatic change. Change requires the active commitment and involvement of higher education leaders, working with state and local government officials, leaders in business and industry, elementary and secondary education leaders, and the public.

## A STRATEGIC AGENDA

Higher education needs to address current and future challenges through a coalition of higher education leaders — presidents, chancellors, executive directors of coordinating boards, campus board members, administrators, faculty, and students — and its stakeholders — the governor, state legislators, local officials, business and industry, elementary and secondary education, the media, and the public. This coalition must develop a vision of higher education working as a system to meet state, local, and national needs. Because a state's contribution to higher education represents a significant investment of revenue and resources, the vision should include the answer to the following question: "What does this state get for its investment in higher education?"

The vision should be embodied in a state strategic agenda for higher education; an agenda that identifies higher education's role in the **state's agenda**. One reason that many higher education education master plans have not been implemented is that there is a lack of clarity in the role that higher education can and should play in meeting the state's agenda. Another reason is that most master plans are not developed within the context of the state's fiscal opportunities or limitations.

A strategic agenda is different from a traditional higher education master plan. The strategic agenda includes:

- higher education's role in meeting state, local, and national needs;
- identification of the funding required to meet these needs, and the amount of available state funding;

- a priority ordering of these needs, and agreement on which needs must be addressed;
- determination of the responsibilities of each campus;
- expectations of the governor, state legislators, and others for higher education's performance in meeting these needs; and
- the indicators that will be used in measuring successful performance.

The strategic agenda must be dynamic, changing as the needs of the state, local communities, and campuses change. The agenda presents an outline for the change that must occur if higher education is to be responsive to a global and technologically oriented economy and multicultural society. Finally, the agenda is an outline of the commitment higher education **and** its stakeholders make to providing a quality and responsive system of higher education.

There is no model strategic agenda. If it is to be effectively implemented, each state must build its own agenda, focusing on the unique needs and resources of the state and its communities.

In developing this agenda higher education and its stakeholders must remember that if the public is to support and benefit from higher education, then individuals must understand the role of higher education in their lives. Too often that is not the case. The problem stems from the fact that policymakers from education, business, and government are talking at cross purposes, failing to recognize each others' roles in meeting major social, political, and economic challenges and failing to pass this message on to the public. Collaboration among public and business sectors and sincere and ongoing communication with the public will be key to overcoming the "perceptions and misperceptions that have blocked real public involvement in the (economic) competitiveness issue" (Immerwahr, et al., 1991).

## Focusing Institutional Roles and Missions

No single higher education institution can meet all of the current and emerging needs of society. These needs can be adequately addressed only when campuses work together as a system to effectively serve different student groups and external clients, and to develop excellence in different academic areas. Few campuses can be fully committed to basic research, but a larger number can be engaged in the application of knowledge to the solution of problems. And each campus, from the research university to the community college, can provide students with a unique educational experience. Given limited fiscal and human resources the efficient, effective, and quality state system of higher education will be one in which different campuses devote their energies to addressing different needs.

During the past decade, however, there has been a move toward homogeneity, not diversity, among bachelor degree-granting institutions. Several forces are responsible for this: pressure for all campuses be all things to all people; and an incentive system, promoted on campus and in the national faculty marketplace, that gives its greatest rewards to disciplinary research. In addition, state policy frequently reinforces the press toward institutional sameness. Funding mechanisms that provide more dollars for full-time equivalent (FTE) students at the research universities encourage comprehensive universities to offer more graduate programs, and funding formulas that are based on dollars per FTE student encourage campuses to grow at a rate that may overcommit the campus in its ability to offer the number of courses and the support services that are needed.

Fostering a set of institutions having distinctly different missions is possible when there is agreement and commitment from higher education and its stakeholders on the responsibilities of each campus, and when state policy consistently supports the distinctiveness of the assigned roles and missions. This agreement and commitment begins with the development of a strategic agenda for higher education.

*Recommendation 1.1*

*The strategic agenda should identify campus responsibilities. Institutions, coordinating/governing boards, and legislators should ensure that institutional role and mission statements are consistent with these responsibilities.*

## Implementation Strategies

If a system of higher education is to be responsive to recognized priority needs, then campus leadership, higher education governing and coordinating boards, the state legislature, and the governor should consider strategies that will promote and reward campus commitment to distinct roles and missions.

Justice Harlan once noted that "equal treatment of unequals was itself unequal." State legislatures need to consider this concept when debating policy legislation and funding policies for higher education. Uniform standards and funding formulas are common practices in most states. But funding formulas based on full-time equivalent enrollments, higher funding levels for graduate enrollments, and matching funds for outside research grants encourage campuses to aspire to be graduate-level research universities. They do not encourage campuses to develop programs in rural areas, accept the new clientele student who requires student services after 5 p.m., and excel as teaching institutions.

States and higher education governing boards should consider funding and accountability mechanisms that encourage and reward institutions for being different and fulfilling their distinct missions.

**Building campus commitment.** Campus commitment to campus mission requires a shared sense of values by the campus community's membership. One way to achieve this commitment is through the recruitment process and reward structure. First, governing board members should be encouraged to select campus presidents who not only agree with the stated campus values but have demonstrated their ability and willingness to promote excellence in areas appropriate to the campus mission. Second, job descriptions for faculty and staff should be designed to recruit individuals whose backgrounds and professional interests are in concert with the values of the institution. Following appointment, faculty and staff commitment can be maintained by designing a reward structure that both recognizes the diversity of faculty and staff talents, and encourages them to pursue activities and scholarship appropriate to the campus mission.

**Legislative support for campus differentiation**. The strong relationship of higher education to the economy and community can be demonstrated by the demands placed upon the campus by many groups. Campuses are asked to be all things to all people and most demands for campus response to community needs are reasonable, if money were not a constraint. The result of these demands is the stretching of fiscal and human resources beyond the limits of efficiency and effectiveness.

It is difficult for elected officials to tell their constituents that what is offered at a campus 50 miles away can not be offered at "their" campus; and so when campus leaders try to maintain institutional distinctiveness by denying approval to a new program or by closing an existing program the groups most affected will appeal to the state legislature. On many occasions the special interest need is upheld. Elected officials must recognize their responsibility in maintaining campus roles and missions and work cooperatively with governing board members and campus leadership.

## Investing in Higher Education for the 21st Century

Many public colleges and universities are suffering an economic depression; 1991 was the first year in more than 30 that state governments appropriated less to higher education than in the previous year (Hines, 1991).

In many cases, higher education is competing for shrinking revenues with other state-funded services, including elementary and secondary education, corrections, health care, and welfare. These other programs have two distinct advantages: (1) they are perceived to address more pressing and immediate social needs than higher education; and (2) legislators have little leeway when appropriating state funds for some of these services because of federal or court mandated requirements (WICHE, 1992f). Meanwhile, funds for higher education are viewed as discretionary, with tuition used to supplement inadequate state appropriations.

Since it is doubtful that demands on state treasuries will abate, or that the national aversion to tax increases will soon be overcome, the current financial conditions in higher education likely will be felt for several years. Unfortunately, the widespread belief (or hope) that the current economic conditions will be short-lived has led to short-term responses: significantly higher tuition rates; more aggressive attention to securing gift, grant and contract funds from private sources; and deferral of campus maintenance programs.

The cumulative effects of these responses deserve serious attention. There is a tendency to move away from an implicit, if not explicit, understanding of the relative cost of education to be borne by students and the states. In states where tuition traditionally has covered approximately one-quarter to one-third of the cost of education, revenue demands may force an increase to more than 40 percent. Such increases, without accompanying increases in state financial aid, may have a widespread impact on student access and educational quality.

As the proportion of the cost of education borne by the student increases, the marginal revenue associated with each student also increases. In the absence of enrollment limitations, increasing dependence on tuition gives institutions an incentive to create demand and attempt to enroll more students, and/or to rely more heavily on nonresident tuition from students who often pay 100 percent or more of the cost of their education.

Higher education also must examine the policy implications of its growing dependence on private resources. In many cases, alliances between higher education and industry are mutually beneficial and contribute to economic development. However, the desire to offer training and research programs in order to attract industry support, or to be attractive to more students, creates potentially strong pressures against attempts to focus institutional missions. In this environment, missions are established in the marketplace, and this may not be in the best interest of a state.

Another consequence of short-term responses to budget shortfalls is the neglect of institutional assets: buildings, equipment, technology, and human capital. Even in more secure financial times, many colleges were not keeping up with maintenance on buildings and the replacement of equipment. Now there is less consideration being given not only to infrastructure, but also to curricular reform (program development, development of new courses), and to the development of human assets (sabbaticals, faculty development).

A fundamental reason for adopting short-term responses is a lack of institutional incentives to adopt long-term cost-saving measures. Regulations that prohibit moving funds from one account to another during the fiscal year, that do not allow savings to be carried over from one year to the next, or that require revenues obtained through entrepreneurial activities to be returned to the state treasury, work against efficient use of resources. Without opportunities to benefit from better management and greater efficiencies, institutions are not likely to move away from the "spend it or lose it" approach.

Limited state resources and the need for greater responsiveness by higher education to assist in addressing complex economic and social problems require a new level of commitment from higher education and its stakeholders in working cooperatively. Stakeholder needs must be identified and prioritized and fiscal resources to meet these needs must be provided.

*Recommendation 1.2*

*Higher education finance policies and procedures must support the goals of the strategic agenda.*

## Implementation Strategies

Finance policies and procedures represent the most powerful state government levers to enlist the aid of colleges and universities in addressing pressing state problems. States need to consider incentives that will promote greater responsiveness by higher education to addressing recognized priority needs. They also should consider funding mechanisms that will (1) encourage institutions to move away from the "spend it or lose it" approach to budgeting, and (2) support institutional efforts to maintain focused roles and missions and thus meet the goals of the strategic agenda. The current economic environment for higher education raises several important policy options:

**Providing incentives for meeting state needs.** On the conviction that carrots work better than sticks, a state, as a regular practice, should consider reserving some small part of its higher education appropriation as incentives/rewards for addressing specific priority state needs. The success of incentive funding programs will depend, in part, on the equitability of such programs (i.e., the assurance that **all** institutions are capable of competing for funds, not just the research universities). It also will depend on the legislative resolve to support such programs, even in economically lean periods.

**Reviewing tuition and financial aid policies.** Many states need to establish clearer sets of understandings and guidelines concerning the cost of education to be borne by states and by students. States and institutions need to move away from viewing tuition as the "plug" that fills the gap between state appropriation and institutional need (Hauptman in WICHE, 1992f). Alternatives include: tying tuition increases to the general economy, financial aid increases, or to the cost of education.

**Reconsidering funding mechanisms.** To encourage institutional efficiency and support efforts to focus roles and missions, states should rethink traditional funding methods. Institutions need financial flexibility to pursue quality improvements that may not be completed in a budget cycle. One option would be to appropriate multi-year funding with the restriction that this funding be used for a designated activity over a period of several years. This would enable longer-term projects aimed at improving quality and meeting state needs to be undertaken with the assurance that funding would continue to be available.

**Maintaining higher education's infrastructure and human capital.** Higher education institutions and state agencies must focus on maintaining and enhancing institutional assets. This means renewed commitment to maintaining existing buildings and investing in people, programs, and equipment. It also includes a recognition of ongoing costs.

A new kind of accountability is needed to ensure that assets, once obtained, are maintained. Institutions should not be placed in the position of unilaterally deciding to depreciate the assets that represent the state's investment in higher education.

## Demonstrating Responsiveness to the Public

Colleges and universities once were considered an essential part of the nation's economic strategy. In recent years, however, there is a sense on the part of the public and state, local, and federal policymakers that many colleges and universities are not of the "real world" and that they are not responsive to the needs of the larger society and the economy, or responsible in their use of limited state dollars and student tuition revenue.

During the past decade, some states have mandated accountability measures that many faculty and administrators consider inappropriate to educational goals. Many campuses have presented statements of accountability that state legislators consider statements of rhetoric not substance. The definition of accountability should be understood by all concerned, and higher education and its stakeholders should cooperate in defining reasonable and appropriate accountability measures that are tied to the implementation of the state's strategic agenda.

Accountability can mean many things to many people. It is the responsibility of the coalition of higher education leaders and higher education stakeholders to agree upon the specifics of accountability. Given agreement, campuses should be accountable for fulfilling their roles and missions, and the systemwide board should be held accountable for meeting the goals and objectives of the state's higher education strategic agenda.

Quality, although hard to define, is included in most definitions of accountability, and accreditation approval is viewed by many as awarding a "limited guarantee" of quality. The accreditation process, an important accountability component, has been criticized for maintaining a traditional view of quality standards focusing on campus inputs (e.g., money) and not outcomes. The dramatic changes that are needed to improve higher education's responsiveness to a new economy in a period of limited fiscal resources will require non-traditional and creative approaches to quality and thus to accreditation processes.

*Recommendation 1.3*

*A new approach must be taken to higher education accountability consistent with identified priorities, expectations, and indicators of successful performance. Statewide higher education boards must be accountable for higher education's performance in addressing the new agenda and preparing reports on their findings.*

*State and higher education policymakers must work with regional and professional accrediting associations to promote standards consistent with the goals of a higher educational system that is responsive to the new global and technologically oriented economy and multicultural society.*

## Implementation Strategies

Accountability is a commonly used word, but it is meaningful only if coalition participants agree on its definition. The bottom line is that regaining the public trust is not possible if the public perceives that higher education is not accountable.

**Developing Performance Reports.** One way higher education might regain the public's trust is through the development of performance reports. Quantitative assessment measurements (retention and graduation rates) as a form of accountability are important but not sufficient. Numbers and test scores do not convince the public that higher education is meeting critical needs. Performance reports that demonstrate higher education's success in meeting the goals of the strategic agenda are needed. These reports might include outcomes of collaborative programs with the public schools, examples of research undertaken to meet state priority needs, or the development and implementation of campus diversity plans.

The full range of state needs can only be addressed when institutions work together as a system. Therefore, the task of demonstrating accountability properly rests with the appropriate statewide governing or coordinating board office. "Timely" performance reports could be given to higher education state and institutional board members, the governor and state legislature, and business and industry leaders. The chancellor of the North Dakota University System, for example, meets annually with state legislative leadership to discuss the system's progress in meeting agreed-upon strategic objectives. Similar procedures exist in other WICHE states.

**Forums to Discuss Accreditation Issues**. Discussions of the accreditation process and standards, and appropriate consideration of revisions are important to maintaining the important role of accreditation as a guardian of higher education quality. However, the institutional costs associated with this process, the need to recognize new approaches to quality instruction and delivery of educational services, and the overlap of regional and professional accreditation with state governing/coordinating board approval processes require open forums for discussion and debate. An example is the discussion among the members of WICHE's Western Cooperative for Educational Telecommunications and regional accrediting associations on the challenges faced by institutions in the process of accrediting quality distance education programs.

## THE NEW ECONOMY DEMANDS A COMPREHENSIVE HIGHER EDUCATION RESPONSE

The following sections of this report describe the changes that WICHE believes must be made if higher education is to meet aggressively the challenges posed by rapid changes in the economic structure and character of our society. WICHE recommends these issues be included in the discussion of the development of the state's strategic agenda for higher education.

Many of these recommendations have been discussed by states and campuses and some already have been addressed. The important message of this report, however, is that a comprehensive approach be taken to establishing and implementing a strategic agenda for higher education.

The complexity of issues to be addressed and the limitations of state resources require that difficult decisions on the use of restricted resources will be needed. Decisions on resource allocations should be made within the context of higher education's long-term role in the economy: higher education is the state's most important resource.

## IN THE PUBLIC INTEREST:

### Strengthening the Relationship Among Higher Education, Government, the Public Schools, and the Private Sector

*Recommendation 2*

*State legislators and campus leaders must make a commitment to greater collaboration among higher education, the public sector, state government, and the private sector. State legislators and campus leaders must provide incentives and rewards for collaborative activity.*

Partnerships with state and local governments, the public schools, and business are not new to higher education. However, they assume a greater urgency as many state-funded programs adapt to a new climate of increasing demand, limited resources, and escalating economic and social needs. If the United States is to compete effectively in the global marketplace, all sectors must collaborate to address critical needs including training workers in higher order skills (communications, problem-solving, interpersonal relations), developing new technologies, engaging more diverse racial and ethnic populations in higher education, and revitalizing rural areas.

Collaborations also are an important demonstration of accountability. They are "visible proof" of higher education's contribution to economic well-being. Collaborations illustrate college and university efforts to meet aggressively a range of public problems from restructuring public schools to fostering entrepreneurship and innovation.

Important higher education collaborations include the agricultural experiment stations and cooperative extension programs of the land-grant universities; contracts between industries and community colleges; partnerships with elementary and secondary schools; public policy institutes and research centers; and small business development centers and business incubators. All of these efforts promote economic well-being and demonstrate higher education's responsiveness to addressing public needs.

Despite the documented success of higher education's approach to collaboration, there are problems needing correction. When higher education and state government create a business development center, a task force on economic development, or a public policy institute they are adopting a piecemeal approach to addressing economic and social issues. These may be effective short-term strategies, but will not meet the needs of long-term problems or the challenges of the global and technologically oriented economy. Few task forces, institutes, or centers engage the enormous capacity of interdisciplinary faculty to address social and public policy problems.

Further, adoption of a singular approach to addressing state and community needs suggests that contributing to economic well-being is not a part of the central mission of a college or university. While it is true that some fields lend themselves more readily to public service (e.g., education, social work), an interdisciplinary approach to problem solving is a necessary step toward comprehensive collaboration. If there are solutions to the significant social and economic problems that confront society (i.e., poverty, hunger, pollution, crime) they will require an interdisciplinary model.

A second issue is that higher education must view collaboration as a two-way street. Faculty should recognize that industry can contribute in important ways to the development of a quality curriculum, and that public school teachers can offer valuable insight on teacher education programs. When collaborations are not two-way partnerships, higher education's impact is limited because of distrust and resentment on the part of its collaborators.

Critics of greater collaborative efforts claim partnerships with industry will compromise academic integrity. They raise important questions. Will research outcomes be influenced by industrial self-interest? Will important research results become the property of a for-profit organization and withheld from the rest of the research community? Will faculty time be unevenly divided between contract research and teaching responsibilities? (Powers, et al., 1988). Further, critics argue, partnerships and applied research have created "independent entrepreneurs" — faculty whose interests are professionally rather than institutionally defined. These questions require serious attention if institution-wide collaborative efforts are to be successful.

## THE CHALLENGE

Achieving effective collaboration requires incentives and rewards for both faculty and institutions. It also requires defining the appropriate roles for faculty/business partnerships and the impact of cooperative activities on faculty teaching responsibilities.

### Invigorating the Applied Research Function

Colleges and universities represent an enormous reservoir of talent that should be enlisted in meeting the needs of the economy and society. This talent, and more, is needed to solve the increasingly complex problems of society and to compete effectively in a world economy in which the greatest success is won by those capable of utilizing intellectual capital to serve the public.

The land-grant university stands as a marvelous example of the benefits to be reaped when intellectual capital is harnessed and applied to the central problems of the economy and society. Through experiment stations and state cooperative extension services, the land-grant university supplied the research and technology transfer that made the United States a world leader in agricultural production. Higher education research and the nation's well-being were closely linked when both the economy and society were heavily oriented to and dependent on agriculture and the mechanical arts. This capacity for service again was demonstrated when the brainpower accumulated in college and university faculties was engaged to help the Allies win World War II and again when Cold War competition was framed in terms of the arms and space races. Further examples are found in the tremendous strides that have been made in medical research as a consequence of long-term, focused attention in this area (Gilley, 1991; Boyer, 1990).

All of these examples demonstrate that this major pool of talent can be a significant force when presented with compelling problems, particularly problems that are given a high national priority. However, since man first walked on the moon, the sense of urgency and focus that drove much of university research involvement has dissipated. The amount of research being conducted has not diminished; to the contrary, colleges and universities are devoting more of their energies to research than ever before. But the emphasis has shifted from applied to basic research.

This basic research/disciplinary orientation is now the dominant culture in the higher education research community. It is basic research, not problem solving, that brings personal rewards in the form of professional recognition, promotion, and tenure. It is also the kind of research that receives funding, a prime consideration to both individual faculty members and institutional administrators. As the major direct funder of research, the federal government plays a strong role in shaping the research agenda for the nation. It devotes a significant portion of its research budget to medical research (much of which supports basic research in the various specialty fields within biology and chemistry), and continues its support of the agricultural sciences, although with diminishing enthusiasm. With these exceptions, major federal funding comes from the National Science Foundation, an agency that emphasizes basic research in the physical and social sciences. In comparison, funding is minuscule for work in the arts and humanities and in applied fields such as education (National Science Foundation, 1991). In many ways, including research as an integral part of the missions of higher education institutions is a product of federal government involvement. By its own "investment strategy," no other body has the capacity or incentive to provide substantial support in this arena.

While the federal government is the major direct funder of basic research, state government is undoubtedly the major indirect funder. Through general fund appropriation support for faculty salaries and academic support programs, state governments finance significant levels of scholarly activity at many public four-year colleges and universities. These funds help ensure that faculty members engage in activities enabling them to remain current in their fields. The fact, however, that the rationale for such funding is tied to currency in the disciplines, along with the fact that the application of research energy is typically determined by the personal interests of the faculty members, virtually guarantees that the focus of attention is on topics other than those identified as priorities for either the economy or society, unless those are the topics of personal interest to the faculty member.

The emphasis on basic research has a positive effect of greatly expanding the base of knowledge that can be drawn upon and applied to the solution of priority problems. Having the benefit of this base, the next step is to take what is known and apply it in a problem-solving context. Some argue that colleges and universities represent a poor vehicle for this latter activity — that their large intellectual capacity is so theoretical that it is ineffective in addressing practical, "real-world" issues. However, there is mounting evidence to the contrary. Universities are conducting more research under corporate sponsorship, and corporations are making the investment because they are reaping benefits from the partnership.

The point that corporate investment is driven by enlightened self-interest is reinforced by the extent to which foreign firms are entering into research contracts with United States universities. Foreign involvement has become large enough, in fact, that there is concern that one of the country's major advantages in the competitive global economy is being better utilized by foreign competitors. There is little likelihood that universities will curtail arrangements with foreign firms, as the notion of free trade applies to ideas as well as to consumer goods and agricultural products. The strategy must be to find ways to better utilize higher education resources to serve domestic needs, not preclude others' access to this capacity.

Forming effective collaborations with business and industry is increasingly important in an economy where innovations are frequently outmoded before they move from the laboratory to the production process. In this highly competitive environment, the traditional 10-year cycle from innovation to production is too long. Technology transfer can be accelerated and enhanced by closer relationships between the university research community and business and industry. Higher education institutions, from research and comprehensive universities to community colleges, have numerous options: maintaining a pool of faculty consultants; developing industrial parks and forming university/industry alliances or consortia in which one or more corporations become partners in specific areas of university research; and sharing laboratory facilities with corporations. Any one of these options benefits both business (through early access to university research) and the university (through increased public support and enhancing the professional development of faculty and students).

Stronger collaboration between higher education and industry often results in greater private sector funding for research and technology on campus. For example, corporations have donated computer and computer-related equipment to colleges with the understanding that faculty will engage in software development.

*Recommendation 2.1*

*Higher education leaders and its stakeholders must agree on the state's priority research needs. Campus leaders must encourage and support faculty activity in these areas. Higher education must demonstrate its commitment to research activities in these priority areas.*

## Implementation Strategies

Except for "finding a cure for cancer" (and other diseases), there has not been a real political consensus around an objective since the United States decided to "put a man on the moon." Reaching such consensus is difficult at best, and has a much better chance at the state rather than the national level. The problem must be stated explicitly, without ambiguity. Being the first to "put a man on the moon" is an objective that can be readily understood; "win the space race" is not. Most recent state initiatives have not set explicit higher education objectives — to "enhance the economic competitiveness of the state" is too unfocused to promote a cohesive initiative.

Institutions, state governments, and higher education governing and coordinating boards can encourage applied research by considering the following:

**Establish research centers to study state and regional problems.** States and higher education institutions need to spend considerable time and energy selecting investment targets, and identifying a small number of problems to be tackled. One way to crystallize this discussion is to identify or establish problem-oriented research centers in which the state invests for an extended period of time. Each center should have a clearly defined mission, and provide an environment in which individuals interested in addressing important issues can pursue applied research within a supportive work context. It should be noted that such centers need not be solely within the purview of major research universities. There are many important issues — such as workforce literacy — that can be addressed effectively by faculty at community colleges and comprehensive universities. It also should be noted that applied research centers can be established on an interstate basis rather than funding duplicate centers in each state. States should consider long-term, targeted funding for centers because major economic and societal issues are not resolved in one or two appropriation cycles.

In addition to supporting applied research centers, another option is creating competitive grant programs with well-specified selection criteria reflecting state priorities. There is need for caution, however, in pursuing such strategies. Support must be continued for faculty in fields outside priority areas, so that they may engage in scholarly work that enhances their effectiveness as teachers.

Strong examples of the commitment of colleges and universities to addressing state economic, social, and public policy issues include the Morrison Institute for Public Policy located at Arizona State University, the Utah Partnership for Educational and Economic Development, and the University of Wyoming's Public Utility Research and Training Institute. (Descriptions of these programs are included in *The Higher Education-Economy Tie: A Sampling of Exemplary Programs in the West, Working Paper #3.*)

**Reinvigorate the cooperative extension mission.** In recent years federal and state funding for cooperative extension has declined (National Science Foundation, 1991). Yet with its success in university/industry technology transfer, the cooperative extension model can be adapted to meet the needs of economically depressed urban areas (Parnell, 1990). States and the federal government should consider strengthening support for cooperative extension services and funding efforts to adapt this model to meet rapidly emerging urban problems as well as other state needs.

**Change faculty reward structure.** Faculty may be difficult to recruit to applied research projects as long as institutions continue to reward basic research more generously than other activities. By reforming the faculty reward structure (see Recommendation 6.2), institutions can encourage faculty from numerous disciplines to make a contribution to applied research projects, and gain their ongoing commitment to addressing state needs.

## Strengthening Higher Education and Public School Connections

Since the publication of *A Nation at Risk*, which describes our nation's schools as "eroded, "mediocre," and "compromised," reforming public schools and improving teacher education have been critical issues (National Commission on Excellence in Education, 1983). During the past decade, the need for educational reform has been accentuated by the rapid and continuing transformation of the economy from an industrial to an information and service-based economy, by the management revolution in business, and by the increasing emphasis on global issues and technology.

As we approach the 21st century, schools must find ways to teach **all** students to master basic skills, reason and think critically and creatively, and be informed problem solvers. Further, teachers themselves must be life-long learners, believe and practice a philosophy that all students can learn, and be skilled at building and participating in powerful learning communities at the school level. Higher education can contribute directly to this transformation through teacher education programs, research on public school issues, and partnerships with elementary/secondary schools.

Through its teacher education programs higher education has a profound influence on the direction of public education. In the 1990s, teacher education programs are being challenged to prepare teachers for restructured schools where the emphasis is on faculty collaboration, teacher leadership, and students as active, successful learners. This process is enhanced when teacher education is seen throughout the campus as an important and valued role, essential to the intellectual, social and political well-being higher education. Schools and colleges of education must redefine their missions to serve the public schools by increasing the emphasis on applied research about problems of concern to the public schools, educating teachers for the multicultural classroom, and fostering the professional development of educators at all levels of the educational system.

If quality improvement in this area is important to those who control budget and program approval at the state level, it will be important to the institutions themselves. The nature of curriculum and program change in teacher education must not be mandated from the state level, but the expectation for significant change must be evident in the ongoing interactions between state officials and campus leadership. The only way to ensure quality improvement in teacher education is to create a system of expectations and incentives that make it worthwhile for schools and colleges of education to improve, and for campuses to value that improvement. All of these steps depend first on state commitment to the importance of the effort.

Equally important to ensuring quality schools is the development of strong school/university partnerships that promote a shared vision for improving public education. Faculty from both sectors need to acknowledge mutual commitment to school restructuring and reform. Two of the most important characteristics of effective higher education/school partnerships are a redefinition of faculty/teacher roles, and the blurring of disciplinary boundaries within the university.

Developing a shared vision for improving public education will require combatting stereotypes held by higher education faculty as well as by public school teachers. For reform to occur, universities and schools must break the stereotypes and redefine faculty and teacher roles so that K-12 educators participate as full partners in preparing new teachers, and university faculty spend a significant portion of their time working with children and teachers in K-12 schools. In addition, faculty research programs must be defined in cooperation with K-12 educators, not presented as fully developed proposals which request "subjects." Partnerships must be built on a new, less status-driven definition of roles in which K-12 educators are accepted as professional peers. The perceived status difference between university faculty and public school educators has resulted in a "consultant-client" or "expert-practitioner" relationship, rather than a collaborative effort. Accepting K-12 educators as peers and full partners in planning, and delivering professional education programs is essential to the long-term success of university/school partnerships.

Finally, successful university/school partnerships involve faculty from throughout the university, not just the school or college of education. While the professional education faculty and administration can be expected to play the major leadership role in forging the relationship with schools, the problems to be solved in both K-12 and the continuing professional education of teachers transcend disciplinary boundaries. Successful partnerships tap the resources of the entire university, from education faculty to arts and sciences faculty and student services professionals.

*Recommendation 2.2*

***Higher education must view campus-wide involvement with public schools, including teacher preparation programs, as its most important collaborative program. State governing boards and legislatures must articulate their expectations of higher education's involvement with the public schools. Higher education funding should be partially dependent on demonstrating accountability in this area.***

## Implementation Strategies

How do we create a policy environment which provides the climate and the incentives to ensure that the right kinds of university/school partnerships and teacher education programs are created and maintained?

**Apply new measures of accountability.** Until public service expectations are made an explicit part of the state's policy framework for higher education, and colleges and universities are expected to recast their missions and activities toward these priorities, collaboration with public education will be an activity pursued only by the dedicated few in colleges and universities. States should expect higher education to demonstrate its contribution to improving public education.

The debate on the critical role of higher education to assist in the improvement of public education has been exhaustive. The results of significant change on higher education's part are inconclusive, but generally accepted to be quite limited. States should aggressively demand that higher education demonstrate a campus-wide commitment to working with the public schools; funding for higher education should be partially dependent on demonstrating accountability in this area.

**Improve the teacher education curriculum and teaching methods.** State higher education governing boards can forge new partnerships with state program approval and teacher licensing authorities to ensure that university teacher education programs are approved only if they meet rigorous quality standards and meet the needs of the public education system of the state. Such a merger could create incentives for true restructuring of teacher education programs in colleges and universities. As these alliances are formed, it is critical that the focus be on creating quality standards based on outcome expectations, since a new and improved bureaucracy for overregulating the process of teacher education would only serve to ensure continued mediocrity and low status for the entire profession.

**Ensure an "equal" partnership.** Higher education and public school partners need to guard against the "paternalistic partnership," in which a college or university appears to take a public school under its wing and prescribe solutions. One method of achieving equality is to establish joint appointments. For example, as part of the University of Southern Colorado (USC)/District 60 Schools partnership, the superintendent of schools also holds the post of USC vice president and reports to both the university president and the board of education. The executive director of facilities and management has joint responsibility for the USC physical plant and maintenance and operation at the school district (WICHE, 1992c).

Also, faculty exchange should be a two-way street. Public school teachers should teach at the higher education level, while university faculty should have the opportunity to work in public school classrooms.

The California Academic Partnership Program (CAPP), administered by the California State University, supports curriculum improvement and assessment projects. The program connects public school faculty and administrators with their counterparts at colleges and universities, "to improve student learning in college preparatory courses." Its primary goal is to better prepare students, particularly students from racial and ethnic groups that are underrepresented at the postsecondary level, for higher education.

**Program articulation agreements**. Program articulation agreements are another form of partnerships between higher education and the public schools. A growing number of high schools and technical, junior, and community colleges have formed "two-plus-two tech-prep/associate degree" programs. Students spend two-years in a special high school program where they are exposed to a broad education which prepares them for more specialized technical training at a postsecondary two-year institution. These programs provide an example of how two-year institutions and high schools can work together to provide students with "broad based competence in a career field...[while avoiding the pitfalls of more short-term and narrowly delineated job training] (Parnell, 1990: 244)." Two-plus-two programs have been successful in better preparing students for work in advanced technical fields, better coordinating high school and college curricula, and enabling students to make smoother transitions from high school to college technical programs. The Bakersfield College Tech Prep/Associate Degree Forestry Program is an excellent example of this type of program (See WICHE, 1992c).

# IN PURSUIT OF EXCELLENCE:

## Improving Undergraduate and Graduate Education

*Recommendation 3*

*Higher education must make a stronger commitment to undergraduate curriculum reform. Reform efforts must include changes that are critical to preparing graduates for the emerging global and technologically oriented economy and multicultural society.*

A pervasive concern in American society is that of national economic competitiveness. As is often the case when the nation is faced with daunting problems, the educational system is expected to contribute to the solution. In the area of economic competitiveness, the linkage is obvious. A major component of an effective national strategy is to enhance the skills and capabilities of the workforce, a priority that establishes an important education agenda.

Occupations experiencing the greatest growth are those requiring more than a high school diploma but less than four years of college (Hudson Institute, 1987). Educational programs best serving the goal of workforce preparation are programs focusing on general education — basic and higher order skills that are taught across the curriculum. Many of these skills are best taught in the context of real problems, involving practitioners in curriculum issues and providing opportunities for faculty and students to experience the environment in which skills learned in the classroom will be used.

This model, however, does not fit neatly within the traditional framework of postsecondary education, and such learning does not necessarily require the completion of a degree program. More importantly, the need for this education is not limited to the young; nor is it only a prerequisite for job entry. The demands of the workplace are changing constantly. In order to be productive, workers must periodically engage in coursework designed to upgrade their skills. Such education does not end when an individual is 21 (or 25 or 30). It extends over a lifetime.

Meeting today's educational workforce needs requires campuswide responsibility rather than the responsibility of individual disciplines or departments. Campuses must build stronger working relationships between faculty and employers, and demonstrate a willingness to engage seriously with employers in discussions about educational program goals.

Transforming undergraduate and graduate education to meet social and economic needs means confronting the academic culture and tradition. It is a break from tradition for baccalaureate colleges and universities to place a stronger emphasis on teaching and learning; to infuse multiculturalism, internationalism, and technology into the curriculum; and to devise academic programs accessible to an older, working student clientele.

## Undergraduate Education

Workers today must possess a variety of skills and competencies, be able to think creatively, compare and contrast ideas, and determine priorities. In a world in which industries come and go rapidly and people change careers four or five times in a lifetime (Sculley, 1988), the successful individual is one who can think rather than simply remember; one who has knowledge and is adaptable; one who possesses the values and skills of the entrepreneur. Higher education's role is to develop individuals who are willing to take risks, think critically, be creative, understand the importance of lifelong learning, and believe in the value of civic involvement (Sculley, 1988; Newman, 1985).

While it is the study of liberal arts that promotes strong conceptual skills, creative outlets, and the knowledge of the international and intercultural world, there has been an increasing emphasis on professional and technical training. In 1970 the majority of students chose majors in the arts and humanities, but by 1985 the percentage choosing these fields had declined by half. In contrast, the percent choosing business as a major increased from 16 to 27 percent, making it the single most popular major (WICHE, 1992g). Moreover, demands for professional credentialling have encouraged liberal arts colleges to shift away from their original missions, and become small professional colleges (Boyer, 1987; Breneman, 1990).

But it is through liberal education that students become more aware of themselves, their values, and their relation to others; more capable of thinking relationally and working with others cooperatively. They develop a stronger sense of self and become more autonomous. Moreover, individuals trained in the liberal arts tend to have better skills than business and engineering majors in administration (organizing, planning, decisionmaking, and creativity) and interpersonal relations (leadership, oral communication, and personal impact) (Brandt, 1989; Woditsch, et al., 1987).

The new economy demands a balance between liberal arts education and technical career preparation at all levels of postsecondary education, from two-year colleges to research universities.

*Recommendation 3.1*

*Faculty must engage students as active participants in life-long learning. Colleges and universities must emphasize a rigorous and integrated curriculum, that blends liberal arts with vocational, technical, and professional education. Higher education must demonstrate progress in meeting these goals.*

## Implementation Strategies

Changing the academic culture will not be easy. However, there are many changes that can be made to improve the quality of undergraduate and graduate education and the status of teaching, and provide the needed workers for a new economy.

**Promote changes in curriculum and teaching methods.** The undergraduate experience, from freshmen year through graduation, should provide students not only with essential knowledge, but with connections among disciplines and with the ability to apply knowledge. This course of study is inherently interdisciplinary with professional/technical and liberal arts education intertwined.

Colleges and universities should reward interdisciplinary activities, encouraging faculty collaboration across disciplines in preparing and delivering courses. This may take a variety of forms: faculty colloquia, coordinated studies programs, paired and clustered courses, and/or the formation of faculty and student "learning communities."

**Restructure the learning environment.** Campuses should be conducive to active learning. Class sizes of 200 to 500 are common at research universities, and limit student-faculty interaction. Freshmen and sophomores, typically enrolled in these classes, seldom have access to the most experienced teaching faculty. Several studies on improving the quality of undergraduate education (Boyer, 1987; Newman, 1985; Task Group on General Education, 1987; Study Group on the Conditions of Excellence in American Higher Education, 1984; Faculty Teaching Excellence Program, 1988; Lenth, et al., 1989; Cheney, 1990) suggest that universities reallocate resources toward serving first- and second-year undergraduate students, exposing them to the finest teaching faculty, in classes small enough to permit meaningful student-faculty interaction.

**Support internships and cooperative learning programs.** Internships and extracurricular activities strengthen student leadership and interpersonal skills and help students develop an active sense of the value of civic involvement. Opportunities for these experiences should be expanded.

A program that has demonstrated success in this area is the Bakersfield College Tech Prep/Associate Degree Forestry Program. Students in this cooperative education program take a broad range of academic and applied courses (at the high school and community college level), work during the summers for the U.S. Forest Service or the Bureau of Land Management, and are guaranteed full-time employment with one of these two agencies when they complete the program. Students who go on to complete the bachelor's degree receive transfer credit at one of four California public universities and receive the same employment guarantee (WICHE, 1992c).

**Encourage innovation and provide leadership.** College and university presidents, governing boards, professional associations, and accrediting agencies have a role in the development of a new academic culture. Through their powers of persuasion they have considerable influence over institutional and public policy. They are uniquely equipped to create a climate in which a new vision can emerge.

## Infusing International and Intercultural Education into the Undergraduate Experience

The economy of the late 20th century operates in a "global marketplace." Capital, resources, and information travel around the world with little regard for national boundaries. Foreign investment in the United States and capital investment abroad by American corporations are increasing dramatically (WICHE , 1992f). Sophisticated telecommunications networks make it possible to use the talents of individuals across the world in productive enterprises.

Unfortunately, the United States is not equipped to participate fully in the emerging global society. Few adults have an adequate understanding of other cultures, world geography, and international events (Barrows, et al., 1981; Gallup, 1988). Economic Development and Trade Association leaders cite this lack of international expertise as a major obstacle to economic competitiveness (Pyle, 1984; Business-Higher Education Forum, 1986; NEBHE, 1989a; Task Force on International Education, 1989).

Understanding international events and foreign policy is crucial to effective participation in a global society. Exposing students to people, cultures, and customs different from their own broadens their views on issues, enables wise judgments in the voting booth, and helps to diminish bias against foreigners and U.S. citizens from diverse cultural backgrounds.

Just as the need for people with international and intercultural expertise is increasing, our commitment to global education has weakened. Institutional incentives and requirements for language acquisition has decreased. Only one-fifth of high school graduates had at least some language skills in 1987, compared with more than one-third before World War II. Only 16 percent of American colleges and universities required foreign language for admissions in 1988, compared to 34 percent in 1966. A recent analysis of undergraduate transcripts revealed that more than one-half of baccalaureate degree recipients took no foreign language instruction (Lambert, 1989). The Fulbright program, the most comprehensive effort to provide American scholars with international expertise and experience, and other exchange programs were cut more than 60 percent in the 1980s (Pyle, 1984; Newman, 1985; Business-Higher Education Forum, 1986; NEBHE, 1989a; Task Force on International Education, 1989; Lambert, 1989).

To live and compete in a global economy we must prepare more students in foreign languages and culture, and develop more experts in the study of other nations and cultures. Universities can do this by integrating international studies courses and concentrations into the core curriculum, infusing intercultural perspective into "traditional" general education courses, expanding study-abroad programs, and revising foreign language requirements and programs. The international perspective also is furthered through faculty exchanges and the presence and integration of international students on American campuses.

As early as 1975, the American Association of State Colleges and Universities urged its member institutions to explore ways of making international and intercultural education an integral part of a quality education (AASCU, 1975). Yet, while the majority of institutions recognize international studies in their general education requirements, these courses often compete with a wide range of courses meant to fulfill a distribution requirement, or are grouped with studies of domestic cultures as part of an intercultural education requirement (Lambert, 1989). Moreover, because most international studies courses are narrowly focused (e.g., French literature, British politics), students tend to learn a lot about one country or culture while remaining ignorant of the rest of the world. Although western civilization or world civilization courses are common core course requirements for graduation, few courses teach students to interpret and analyze contemporary international issues, and western civilization courses offer little or no exposure to cultures in Asia, Africa, and developing countries.

Foreign language coursework also is limited. Only a minority of students enroll in foreign language-related courses, and of those that enroll the majority are humanities or social science majors. Students in applied and professional fields are much less likely to enroll. Moreover, it is not clear that students enrolled in foreign language-related courses are given a broad cultural understanding; most foreign language related courses focus on skill acquisition. More than 60 percent of foreign language related courses at research and comprehensive institutions, and 85 percent at two-year institutions, are skill-related. Only at liberal arts colleges, where literature is the principal vehicle for foreign language instruction, are the majority of courses not primarily skill related (Lambert, 1989).

Fewer than one percent of American undergraduate students take advantage of study-abroad programs, and most programs are inadequate to the task of educating students for an understanding of a different culture. Most programs are limited to a semester or summer session. In 1989-90, only 16 percent of students enrolled in these programs spent a full academic year abroad. Moreover, the majority of students major in humanities and foreign language; students in business and professional programs are seriously underrepresented (IIE, 1991; Boyer, 1987). Participating students are more likely to be from selective liberal arts institutions. Students from less selective colleges and with lower family incomes rarely participate, due in no small part to a lack of financial support (Newman, 1985; Boyer, 1987).

Exchanges among faculty also are important. Faculty exchange programs provide American scholars with international expertise and experience. Recent reductions in these programs, however, are limiting the interchange of scholars. Increased funding is needed to strengthen these programs and encourage exchanges with Asian, African, and developing countries.

*Recommendation 3.2*

*The global economy requires institutions to infuse an international perspective into the curriculum. States and institutions must expand opportunities for students and faculty to develop international expertise and experience. Higher education must demonstrate progress in meeting these goals.*

## Implementation Strategies

Success in a global economy demands that international and intercultural education play a larger role in a student's educational experience.

**Integrate international education into the curriculum.** If students are to develop a "global understanding," an international content should be infused into core courses in the humanities, social sciences, and applied fields. Moreover, where undergraduate international studies concentrations exist, they should encompass a broad liberal arts approach, rather than narrow specialist training. Finally, the value of international courses/programs will be strengthened if institutions expand the number of substantive courses taught in foreign languages, if students have access to non-Western language courses, and if faculty use curricular materials and teaching strategies that give students a broader cultural understanding.

**Strengthen study-abroad and exchange programs.** American colleges and universities should increase the number and substance of study-abroad programs. Placing study-abroad students in English-mediated American programs is inadequate. "Service-oriented" study-abroad programs may be one solution to this problem. Student participants could be expected to work at least part-time in a local community project in the host country, in addition to completing specified course work. This type of experience enables students to become immersed in another culture and language. In addition, efforts should be made to establish more extensive study-abroad programs in non-European countries and provide students adequate preparation by offering the appropriate area studies and language courses. Study-abroad and home-campus curriculum should reinforce one another.

More initiatives are needed to continue strengthening international exchange. Some institutions in the western United States do not have the resources to negotiate student exchange agreements with other nations, thus limiting student access to study-abroad programs at these institutions. As a regional student exchange organization, WICHE may be able to help these institutions develop ties with foreign institutions and expand their involvement in international student exchange.

Lewis-Clark State College in Lewiston, Idaho is an example of an institution committed to international education. The college's International Exchange Conference, held annually since 1982, assembles some of the most influential and respected leaders in their fields from throughout the U.S. and abroad to explore trade issues, examine political relationships, and share cultural experiences. Every effort is made to involve students in conference activities — faculty integrate conference events into their courses, and student participation throughout the program is encouraged. Another innovative program in international education is the School of Hawaiian, Asian, and Pacific Studies at the University of Hawaii. This program represents the ongoing commitment of the University of Hawaii to integrate international awareness and intercultural understanding throughout the educational experience. Partnerships for Service Learning, a not-for-profit educational organization based in New York, represents yet another approach to international education. Its mission is to provide programs that combine structured learning with community service in intercultural settings within the U.S. and abroad. The only U.S. program involved in the partnership is affiliated with South Dakota State University. Students in this program continue their academic work while simultaneously working in community service projects among Native Americans on reservations and in other locations in South Dakota.

## Meeting the Needs of the New Clientele

Eighty percent of the people who will make up the workforce at the turn of the century already are working. Of these, about one-fifth are classified as functionally illiterate and all are in danger of being displaced at some time during their work life (Perelman, 1984).

In western states, with widely dispersed rural populations, retraining the existing workforce is crucial to economic vitality. Rural economies which once thrived because of location-specific advantages such as timber, crops, or minerals, increasingly depend on specialized human services, information processing, and telecommunications. Many farmers are finding they require a higher degree of business and technical training than they currently possess (Parker, et al., 1989; Hobbs, et al., 1989).

The typical college student of the 1960s was an 18-to-24-year-old, white male. The college student of the 1990s is far more likely to be over 25 years old, a woman, and/or non-white/Latino. This new clientele approaches postsecondary study differently. Most older students study less than full-time, work at least part-time, are married and/or have family responsibilities, and return to school for career related reasons. This "new majority" student cannot relocate or travel great distances to pursue educational opportunities, and the inflexibility of the traditional university schedule often presents a hardship (Aslanian, 1988). The community colleges have been most responsive to this new clientele (Boyer and Kerr in WICHE, 1992d).

Many four-year colleges and universities have responded to the needs of their new clientele by adding some combination of evening and weekend classes, early-morning and late-evening courses, correspondence and telecommunicated courses, and off-campus sites. Student services designed specifically for the older, working student have emerged, including early orientation and preparatory programs designed to aid adults re-entering college. However, for most colleges and universities special programs for the adult student and life-long learner are grafted onto the traditional mix of courses and programs. If higher education is to be responsive to a new economy the emphasis must be changed. Programs for the new clientele should not be add-ons; academic programs must be more adaptable to the work and lifestyle patterns of the new clientele.

Campus role and mission should guide the number and type of undergraduate and professional programs focused on meeting the needs of the new clientele. The traditional academic curriculum and schedule must be re-examined. It should be the responsibility of the statewide governing/coordinating board to ensure that the state's system of higher education is meeting the needs of higher education's new clientele.

Federal financial aid policies present barriers to part-time student enrollments, and many state funding formulas have disincentives for greater campus attention to the part-time student. In states where funding is based on full-time equivalent (FTE) enrollments, campuses may not receive adequate funding for support services demanded on a headcount, not FTE basis.

### *Recommendation 3.3*

*Higher education must be responsive to the educational needs of its new clientele* and reduce the barriers to the full participation of life-long learners. Progress in meeting the goals of access, retention, and student success must be demonstrated.*

*Higher education's new clientele includes: life-long learners, place-bound students, part-time students, working adults, re-entry adults, individuals in rural communities, and members of underrepresented racial and ethnic groups.

## Implementation Strategies

Removing barriers to the full participation of life-long learners in postsecondary education will enhance the nation's ability to compete in an economy which rises or falls on the skill and problem-solving abilities of its workers.

**Encourage alternative courses of study and educational delivery systems.** The student with extensive work-experience is more comfortable with small class sizes and with teaching methods that enhance his or her ability to improve basic and higher order skills through constant practice (Hall, 1991). Faculty collaboration with employers in the preparation and delivery of courses can provide a quality education and should, where appropriate, be encouraged; student involvement in the workplace can strengthen the educational experience; faculty development opportunities for working more effectively with older students can benefit both faculty and students; credit for independent study, work- and life-experiences is appropriate for many degrees and should be seriously considered.

Course locations and times are an important factor in a working-student's decision to return to college. The era of the 9 a.m to 5 p.m. campus is gone. The new economy requires a system of higher education convenient to working adults. Off-site, work-site, and telecommunicated courses are all avenues for increasing the participation of the new clientele.

The Maricopa Community College District in Arizona is recognized nationally for its strong academic programs, high student transfer rates to four-year degree programs, and innovative alliances with industry. A majority of Maricopa's students are employed, over 30 years of age, female, and come from racially and ethnically diverse backgrounds. One way the district meets the needs of this new clientele is through a variety of customized employee training programs. The Motorola University West, established in 1991 through a partnership between Mesa Community College and Motorola, provides customized education and training for Motorola employees ranging from job-related technologies to literacy skills. A similar partnership exists between other colleges in the district and General Motors. These partnerships bring employees, faculty, and corporations together, working hand in glove, and learning from each other (WICHE, 1992c, 1992d).

Another example is the Northern Arizona University agreement with Yavapai Community College and Arizona Western College. Students receiving associate degrees from these colleges may pursue baccalaureate degrees through Northern Arizona University via interactive television instruction. This agreement makes it possible for students to have access to a baccalaureate program without leaving their home communities.

States and higher education oversight and governing boards can encourage these practices by providing full-funding for credit hours generated through telecommunications at off-site locations, and for internship activities; providing student aid funds in the form of work-study grants that make internships economically attractive to employers; and adjusting FTE funding formulas to account for the added costs associated with serving a clientele which is predominantly part-time.

**Support appropriate remediation programs.** At least some of the education provided to individuals seeking to acquire workplace skills may be considered pre-collegiate, or remedial. Misperceptions about remediation programs have led to state policies prohibiting credit for remediation courses or requiring tuition at full-cost of instruction. However, on most campuses a strong argument can be made for the appropriate and important role of remedial courses.

Traditionally, courses labeled remedial have a course content that is pre-collegiate and provided in the high school curriculum. State policy denying credit for the 18-year-old deficient in algebra will also deny credit, and thus financial aid, to the 40-year-old returning to the workforce. Is this state policy appropriate for a system of higher education trying to more responsive to the new economy? While extensive remediation programs are not appropriate at all institutions, campuses need more discretion if they are to be responsive (WICHE, 1992f).

**Reexamine financial aid policies.** The adult working student comprises close to a majority of higher education enrollments (U.S. Department of Education, 1991). This new clientele is more likely to attend college on a part-time basis. Although some students receive tuition reimbursements from their employers, most do not. Consequently, financing college education is a serious concern for this clientele. State financial aid policies and practices should benefit all students whose education is a priority concern for the state.

Part-time students are eligible for most state financial aid programs in the West. However, even when part-time students are eligible, the majority of state aid goes to full-time students. For example, Colorado's full-time students received 96 percent of the total pool of state aid in 1990-91 (Colorado Commission on Higher Education, 1991).

**Remove barriers to business-higher education cooperation.** A large percentage of courses taken by working adults is offered by non-school organizations. According to some estimates, only 28 percent of adults taking educational courses are enrolled in "traditional" postsecondary institutions; the remaining 72 percent receive instruction through non-school organizations (Perelman, 1984). Courses taken through non-school organizations are not limited to job training, but range across specific job tasks and basic skills courses in English and math to professional continuing education programs. This notwithstanding, the majority of the training programs offered by business and industry are provided to workers who already are highly educated. Workers with less education must turn to traditional public pre-collegiate or postsecondary programs for education and training — seldom offered at the work site.

Although specific job training courses may be considered the responsibility of industry, the wide-spread acquisition of basic skills and the continuing education of professionals are in the public interest. However, state policies prohibiting the use of public funds for private purposes discourage higher education institutions and businesses from cooperating to make basic skills and continuing education courses widely available at the work site. Some states do not include enrollments in off-site courses in their funding formula. Despite the public interest in providing these services, business is usually required to absorb the full cost of instruction when it is offered at the work site. In some cases, federal funds have been used to encourage instruction at the work site. Project S.U.C.C.E.S.S. in Hawaii, a workplace literacy program partnership between ITT Sheraton Hotels and the University of Hawaii at Manoa, is funded by the U.S. Department of Education, Office of Vocational and Adult Education, with matching funds from the ITT Sheraton Hotel chain. States also can encourage the delivery of instruction at the work site, and greater access to educational opportunities for less skilled workers, by enabling cost-sharing between the state and business. In instances where the use of higher education funds would be inappropriate, state economic development funds might be used for this purpose.

# A NEW ENVIRONMENT:

## Promoting Diversity of the Nation's Campuses

*Recommendation 4*

*Colleges and universities have a responsibility to take a leadership role in demonstrating that racial and ethnic diversity is an institutional, societal, and economic asset by fostering successful multicultural environments. Campuses must develop and implement strategic plans for diversity, and demonstrate progress in meeting these goals.*

In 1988, *One Third of A Nation* challenged American higher education to improve the recruitment, retention, and graduation of underrepresented racial and ethnic groups. One-third of the nation's school-age children will be members of these racial and ethnic groups by the year 2000, and one-third of new workforce entrants already are from these groups. Yet, at a time when the economy places a premium on advanced skills and a high degree of adaptability, rates of "minority" participation in higher education remain disproportionately low (Commission on Minority Participation in Education and American Life, 1988).

In the 1960s and early 1970s significant gains were made in the postsecondary participation rates of underrepresented racial and ethnic groups. The expansion can be attributed to a variety of factors, including increased attention to civil rights issues; legal efforts to eliminate discrimination; increases in student aid and other programs; expansion of the number of colleges and universities; active recruitment of underrepresented students by institutions; and aid to historically black colleges (Green, 1989; Newman, 1985; Parnell, 1990). Since 1975, however, progress has slowed. Increases in the enrollment of non-White and Latino students over the past decade have been due primarily to an increase in the size of the non-White and Latino population. With the exception of some Asian-American populations, these groups (Latinos, African-Americans, and American Indian/Alaskan Natives) continue to be seriously underserved by the higher educational system (WICHE, 1991).

There is general agreement that in the 1990s and beyond colleges and universities must do more than graft isolated, special programs onto the existing campus structures. Programs and activities that assist students in making the transition from high school to college, help students improve study habits, and mentor students with faculty members will be beneficial to **all** students regardless of race or ethnicity.

Campuses that successfully attract and educate students from underrepresented populations share one trait — they have developed a comprehensive and campus-wide approach to multiculturalism. All campuses are well advised to develop a strategic plan for diversity which establishes the commitment of university leadership (including senior administrators, governing boards members, staff and faculty members), clearly states the institution's goals, sets a timetable for meeting these goals, includes means for resolving conflicts, and develops a plan for measuring and evaluating success (Green, 1989).

In the 1990s, achieving equity and excellence requires more than the aggressive recruitment of high school seniors. It requires stronger linkages between the elementary and secondary education systems and the postsecondary education system. Intervention is needed before ninth grade, the time at which the majority of students from underrepresented racial and ethnic groups drop out of the educational system. Equity and excellence also require strong articulation agreements between the community colleges and four-year colleges and universities.

Student persistence also is influenced by financial concerns. Difficulties in meeting college expenses may affect a student's initial aspirations, commitment to achieving educational goals, and ability to become integrated with the academic community. Further, there is reason to believe that the type of financial aid package a student receives, not just the amount of assistance, may affect persistence. The issue for racially underrepresented students may be a cultural prohibition against incurring large debts. While student loans provide needed financial assistance, they also may present students with a long-term financial burden that is unacceptable (Cabrera, et al., 1990; Hossler, 1984; Stampen and Cabrera, 1986, 1988; Olivas, 1985).

Our society is culturally pluralistic and the college curriculum should reflect this pluralism. Infusing multicultural perspectives into the college curriculum is an imperative. The typical response on college campuses to a more representative curriculum is to add ethnic and gender studies programs. While these programs are important they are not sufficient to the goals of a multicultural campus. Multicultural studies should be included in general education requirements; multicultural perspectives should be integrated throughout the college curricula; and new faculty appointments should include a more culturally diverse faculty.

Issues related to the creation of the multicultural campus are complex; they have been difficult for higher education to sort out and they have led to confrontational situations on some campuses. To many, the task ahead may seem overwhelming. Students, faculty, and staff must learn to respect other cultures. Higher education must play a leadership role in helping society understand and value different cultures.

The dialogue has begun on many campuses. Many institutions are broadening syllabi to include multiple contributions to western and world culture and are challenging students to develop their capacities for interpretation and analysis of different cultures. A rich and complex array of primary texts from all cultures, from the ancient to the contemporary, is being used to explore cultural topics. Students are taught to both read texts for their strategy, structure, and content, and to view them as a reflection of another way of life (Schneider, 1991). Campuses that make a commitment to multiculturalism actively recruit students, faculty, and staff from diverse racial and ethnic backgrounds, and encourage all faculty to incorporate multicultural perspectives into their courses by providing them with professional development opportunities that enrich their understanding of multiculturalism.

## Implementation Strategies

The successful multicultural campus is one that makes a commitment to diversity and student achievement through faculty involvement, changes in academic practices (teaching methods and curriculum), and promotion of a multicultural campus environment.

Promoting multiculturalism means more than sponsoring cultural events. It requires infusion of multicultural perspectives into the curriculum, promoting interactive learning experiences, providing financial and academic support, developing a sensitivity to other cultures, and providing leadership that supports and encourages multiculturalism. Campuses, higher education governing and coordinating boards, multi-state organizations, state and federal governments are challenged to focus more attention on these issues.

**Develop strategic plans for diversity and institutional change.** The first step for every institution is designing a strategic plan for diversity. The diversity plan should be part of the campus goal setting process and reflect the role and mission stated in the state's strategic agenda for higher education. Plans are developed from a campus dialogue and assessment of current conditions and consensus of goals. They include: a statement of goals and a commitment from campus leadership to achieving the stated goals; a timetable for meeting goals; mechanisms for resolving conflicts; and procedures for monitoring, evaluating and holding the institution accountable for progress toward its stated goals. It is important that the entire campus community be involved in the planning and encouraged to take ownership of the process. Central to the plan is a greater campus emphasis on outreach to public schools, the community, and private sector; hiring staff and faculty from diverse racial and ethnic backgrounds; expanding faculty development opportunities; establishing mechanisms for resolving conflicts; and restructuring the curriculum and teaching methods.

Recognizing this need, WICHE's Institutes on Ethnic Diversity provide technical assistance to campuses in developing and building strategic diversity plans and initiatives. The goal of this program is to help campuses better understand the value of multiculturalism, develop strategic actions plans for recruiting and graduating diverse student populations, and involve all campus constituencies in producing comprehensive campus changes.

**Develop and establish partnerships to create early identification/ intervention programs.** Colleges and universities should actively promote the participation of underrepresented racial and ethnic students in higher education through partnerships with the public schools. There are many examples of programs where colleges working with the elementary and secondary schools identify students from underrepresented racial and ethnic populations and provide them with academic support services and encouragement to think in terms of college. The College Enrichment Program at the University of New Mexico, for example, targets New Mexico's minority high school seniors. High school seniors are provided with information on admissions requirements, career preparation programs, financial assistance, scholarships, and student support services. A week-long orientation program familiarizes new students to the university prior to the beginning of the academic term. Once enrolled, counseling, advising, and academic tutoring services provide these students with the support they need to complete their program of study and find suitable employment upon graduation. The Early Awareness Program at the University of Texas, El Paso intervenes earlier in the student's high school career. The university provides counseling beginning in the sophomore year of high school. A New Student Orientation Program integrates students into the institution, and student support services and academic advising focusing on the students' career orientation are central parts of the program (Halcón, 1989).

Corporate volunteers and sponsorship often are instrumental in the success of early outreach programs. The McKnight Doctoral Fellowship Program in Florida is an example of private foundations and businesses working together to provide financial and academic support for African-American students to pursue a Ph.D. degree.

State incentive funding programs should be considered as an inducement for institutions of higher education and the public schools to work together to improve the participation of underrepresented groups.

**Strengthen federal and state need-based financial aid programs.** Institutional efforts to improve the participation of underrepresented students work best when supplemented by federal, state, and private efforts to remove economic barriers. Because the type of aid package may influence student persistence, institutions, states and the federal government should place more emphasis on grants and work-related programs. Work-study programs traditionally focused on clerical jobs should be re-evaluated and restructured so that students are provided job opportunities that provide learning opportunities.

**Encourage innovative programs.** Incentive funding programs encouraging colleges and universities to develop innovative programs for the recruitment and retention of underrepresented students can have long-term benefits for the state as well as the students.

**Educating "minority" doctoral scholars.** The number of Ph.D.s from underrepresented racial and ethnic backgrounds remains small. With as many as 40 percent of the nation's faculty eligible for retirement in the next decade, a smaller percentage of baccalaureate degree recipients continuing on to graduate education in the

1980s (U.S. Department of Education, 1991), and more doctoral degree recipients choosing non-academic careers, there is increasing demand for new college and university faculty (WICHE, 1992a). Increasing the number of faculty from underrepresented racial and ethnic groups requires cooperation among colleges and universities within and across states to identify promising undergraduates, encourage them towards graduate education, support them in their graduate programs, and assist them in obtaining faculty positions.

The Minority Doctoral Scholars Program is a new initiative of the Western Interstate Commission for Higher Education, the Southern Regional Education Board, and the New England Board for Higher Education. This program will bring together states and institutions to encourage promising "minority" undergraduates, support fellowships for "minority" graduate students, and assist these Ph.D. recipients in finding appropriate faculty positions in their home region.

# BEYOND THE TRADITIONAL CLASSROOM:

## Using Technology More Efficiently and Effectively

*Recommendation 5*

*Efficient and effective use of technology for instruction, educational delivery, research facilitation, and campus management must become a state priority. States and institutions should develop strategic long-term plans and provide funding for the use of new education technologies. Barriers to the increased use of technology, including disincentives created by traditional faculty reward and promotion policies and state funding formulas, must be removed. Higher education must demonstrate progress in meeting these goals.*

The world is in the midst of an information revolution. Computers, fiber optics, invisible microwaves, and other technologies are transforming the economy and society of the late 20th century. This revolution presents higher education with unprecedented and exciting opportunities and challenges.

Telecommunication technologies enable students at remote locations (work sites, rural areas) access to courses, faculty, and information resources previously out of their reach. Collaborative efforts between higher education and business and industry, such as the National Technological University, are making specialized educational programs available to workers via telecommunications. And nearly every state in the western region is engaged in developing educational telecommunications services that will meet the needs of their dispersed populations. Being responsive in the 1990s requires institutions of higher education to incorporate information technologies into the administrative and academic life of the campus — from telecommunications and computer-aided learning to computerized registration systems and on-line library catalogs.

Providing educational services to geographically dispersed populations is an important issue in the West. Nine of the 10 most sparsely populated states in the nation are in the West, and the majority of the population in seven western states lives outside metropolitan areas (WICHE, 1992g). New technologies make it feasible to provide educational services in areas where they were previously unavailable. Use of telecommunications technology in rural areas also spurs regional and local economic development by making infrastructure (fiber optic networks, etc.) and education resources available.

Effective use of new technologies, however, demands caution:

- Scarce state dollars will only support programs which are carefully designed and efficiently utilized. Start-up costs are significant, and long- and short-term investments must be made in hardware, the development of courseware/software, and telecommunication delivery systems.
- Long-term economic development and educational quality may be sacrificed if technology is used to displace, rather than to develop, the region's human resources.
- A quality education cannot rely solely on technology. Student and faculty interactions are an important part of the educational experience.
- Implementing a system that is cost-effective and educationally sound requires cooperation among state governments, higher education, elementary and secondary education, business and industry, and local communities.

In most of the western states comprehensive plans for building statewide telecommunications networks already exist. While these plans stress the importance of long-term strategic planning and effective implementation of informational technologies, they tend to underemphasize the development of instructional access. Without effective access to instructional services (for elementary/secondary and higher education), the economic benefit of these systems to the state and local communities is diminished. Consequently, sophisticated state telecommunications systems are sometimes underutilized.

Instructional access also is hindered by a lack of collaboration among institutions and across states. Protection of institutional prerogatives and competition for resources discourages effective collaboration. In response, interstate and cross-regional cooperation may reduce duplication of efforts and encourage collaboration in the development and use of software and courseware.

Unfortunately, existing institutional and state policies often are a disincentive to the development and use of instructional services. Lack of credit in tenure and promotion decisions discourages faculty from developing courseware. Institutions seeking to produce or adopt telecommunicated courses are discouraged by state funding formulas that do not give credit for off-site students and programs, and by the lack of uniform state policies for accreditation.

Acquiring sophisticated equipment through the state capital budget also presents problems. The slowness of the state budgeting process and its inflexibility often results in equipment purchases that are obsolete before they are installed. Further, state controls on the acquisition of equipment (competitive bidding, mandatory review by central purchasing agencies, and restricting purchases to an approved list of vendors) can add significant dollars to the total cost. Finally, while the life cycle of physical infrastructures is measured in decades, the life cycle of computers and other information technologies is measured in years.

The initial purchase of capital equipment represents only one-half the cost of operating educational technology systems. The remainder is consumed in maintenance, support, and system upgrades. Yet, institutions frequently invest in computer and telecommunications equipment with one-time funds, and fail to adopt comprehensive, long-range plans for acquiring and retiring technology (Hawkins, 1991; Carey, 1991; Kozma, 1991).

## Implementation Strategies

High start-up costs for using technology and financial disincentives for telecommunications frequently discourage states and institutions from making the investment necessary to realize the long-term per-student savings, increased access, and quality education these new technologies can provide.

State and higher education leaders should view technology as the catalyst for effective change. Technology is the tool for higher education to become responsive to the economic needs of the 21st century.

**Examine and remove financial barriers discouraging the use of educational technologies.** State higher education formula budgets generally are based on a relationship between costs and full-time equivalent student enrollments. The operating costs of technological delivery systems, however, are not directly related to enrollments or course credits. The high cost of maintaining and upgrading equipment, and differential costs related to the number and skill levels of personnel needed to operate these systems, distort traditional funding equations. Funding approaches must consider the differential costs associated with the design, development, maintenance, and operation of instructional technologies.

One approach to financing high cost equipment is through long-term debt. While this can be a solution, care must be taken so that the cost of debt services does not cut significantly into operating revenues for personnel and support services.

One approach to thinking about financing technology is to think about technology as an academic support service analogous to the library. Technology must be infused and used throughout the campus just as are books; technology "librarians" must become key academic support staff; and adequate funding must be provided.

Carnegie-Mellon University's Project Mercury represents one of the first efforts to infuse technology throughout the campus. Faculty, staff, and students don't need to go to the library, the library comes to them through a sophisticated library information computer network. Without leaving their desks, scholars can retrieve documents stored on computers throughout the nation.

**Involve higher education and its stakeholders in the design of telecommunications systems.** The goal of educational networking is to expand services to the entire educational community. Developing an effective statewide telecommunications system requires that teams, representing all levels of the educational system, be formed to oversee planning and operation. State governing and coordinating board members can be leaders in these efforts, encouraging and coordinating cooperative ventures among state universities, community colleges, and the K-12 system.

Telecommunications systems can provide critical communication links for rural areas if they are developed with community members to meet community needs. Telecommunications systems can provide coursework to (1) secondary schools which add breadth and depth to the curriculum, (2) teachers for continuing education and inservice training, (3) community members to upgrade their knowledge and skills making them more attractive to industry, and (4) rural leaders making them more aware of the current and alternative opportunities for the community. Telecommunications permits delivery of services providing expertise, innovation, and state-of-the-art knowledge (WICHE, 1992g).

EDNET, a two-way interactive audio/video closed circuit microwave education network, delivers K-12 and college courses to 21 sites across Utah. In the summer of 1991, more than 148 programs were delivered via EDNET — 57 percent of the programs were instructional, for-credit coursework, while the remaining 43 percent were informational programs (e.g., meetings, teleconferences). More than one-half of EDNET's instructional programming is used for public school education, the other half is used for higher education telecourses offered by public colleges and universities (WICHE, 1990).

**Reward faculty for innovative uses of educational technology.** If instructional technologies are to be used effectively many issues must be resolved. Faculty involvement is crucial to the successful use of technologies in the curriculum, but faculty frequently are discouraged from adopting innovative instructional approaches. Using new technologies requires a high level of attention to technical details (software, hardware, etc.). Moreover, technology is not a substitute for good teaching. A great deal of time must be devoted to designing and redesigning instructional programs and course materials. Faculty members who take on these projects do so in spite of institutional norms that discourage giving this kind of attention to teaching. Faculty frequently cite a lack of release time, money, equipment, and technical assistance as reasons for not incorporating instructional technology into the curriculum (Kozma, 1991).

**Infuse technology into the institution.** Campus administrative and faculty leaders play an important role in creating an environment which encourages the integration of administrative and academic telecommunications and computer systems and the development of innovative instructional approaches. Comprehensive campus-wide plans for the adoption, diffusion, and utilization of academic and administrative technologies are needed. Computer support services must be integrated into the instructional mission of the campus.

In 1992, the Hawaii Board of Regents adopted a Strategic Plan for Information Technology. It includes an assessment of the external environment; an assessment of the institutional values and context of the University of Hawaii; an evaluation of the University's progress and internal capacity in key areas of information technology; and lays out nine fundamental strategic objectives along with recommendations for action. This plan grew out of the recognition that successful use of new information technologies requires a long-term, coordinated investment in infrastructure (i.e., organization, space, personnel, ongoing maintenance, and support).

**Accountability.** As technology becomes ubiquitous the need to incorporate technology into instruction becomes all the more critical to ensuring the quality of education. The application of instructional technology should be included in assessments of undergraduate program quality.

**Role of regional collaboration in instructional telecommunications.** Technology has the potential for altering and expanding the role and mission of institutions and service areas (within the state and beyond state boundaries). Governing and coordinating boards should consider eliminating service areas for telecommunicated programs. These boards should also consider the diversity of instructional methods and institutional types when evaluating the mix of available higher education services. As technology use expands, state higher education boards will find it increasingly beneficial to promote state and regional cooperation for the sharing of educational technologies, quality instructional programming, and other services within and across states.

The primary advantage of developing instructional telecommunications infrastructures is the potential they create for sharing instructional programs across institutions within a state, and across state and national boundaries. As the world of education becomes interconnected through the use of these new technologies, national and/or regional coordination of activities can help to ensure program quality, reduce duplication of effort, and enable the sharing of resources. The Western Cooperative for Educational Telecommunications (WCET) was established to do just that. It brings together users and providers of educational telecommunications; helps them make the most effective use of technology through cooperation and collaboration; and makes available information, resources, and expertise in the telecommunications field to its members. Current activities include facilitating the development of a satellite-delivered program in library science; evaluating campus-based degree programs delivered via technology; and examining state regulatory policies with regard to educational uses of telecommunications networks.

Another example of the value of regional collaboration is NorthWestNet — a high speed supercomputing network serving higher education institutions, government laboratories, and private businesses in six western states. An estimated 20,000 network users in universities and businesses throughout the region access national and international electronic mail, transfer data files and software, and conduct other kinds of research and collaboration. NorthWestNet's goals over the next two years are to expand its services to all colleges and universities and the entire public, private, and government research community in the six states; and to expand to include library and other networking services.

# THE KEY TO CHANGE:

## Gaining Faculty Commitment

*Recommendation 6*

*The global economy places new demands on higher education, and this requires a renegotiation of faculty roles. Faculty must make a commitment to addressing the goals of the new higher education agenda, and institutional leaders must provide a policy and work environment that encourages this commitment and participation. Higher education must demonstrate that faculty assignments and responsibilities are consistent with campus roles and missions and support the goals of the strategic agenda.*

Fundamental change for higher education is not possible without the commitment of the faculty. Faculty must have a significant role in shaping the future of the campus, and they must accept responsibilities for meeting the new challenges.

Faculty roles and responsibilities must be tied to campus roles and missions. For many campuses this will require a renegotiation of faculty roles and a change in traditional faculty tenure review, reward, and promotion policies. For example, the recently revised tenure and promotion policies of the University of Wyoming place increased emphasis on the role of faculty in meeting state needs. Applied research and public service are recognized as important faculty responsibilities.

With the exception of community colleges, a basic research/disciplinary orientation dominates the culture of the higher education community. This is the orientation that is rewarded. However, the challenges facing the nation and each state and community require an interdisciplinary understanding of issues and the knowledge and skills that are learned in quality liberal arts programs. For this reason the culture of the higher education community must embrace a teaching/interdisciplinary orientation. This will require dramatic change and strong faculty commitment.

Faculty leaders must be encouraged to be leaders of a campus with a new orientation. New faculty members and academic administrators should be hired for their commitment to the institution, belief in the new agenda, and their resolve not to let pressures from external or internal constituencies sidetrack campus progress toward meeting the goals of the new strategic agenda. All faculty should be expected to demonstrate in tenure and promotion reviews their involvement in activities which are consistent with campus role and mission, and with the goals of the strategic agenda.

This re-orientation is not defined as an abandonment of higher education's research mission in favor of teaching or public service. But faculty must accept a more inclusive view of scholarship — one that recognizes and rewards the diversity of talent that exists within the professoriate and breaks down the walls among the disciplines.

Faculty support for these changes may be gained through institutional incentives for involvement in projects that further the campus role and mission and the goals of the strategic agenda — such as release time to develop instructional technologies and learn new teaching methods, or to participate in public service and applied research; and special summer grants to conduct research on public problems or innovative instructional techniques.

## Provide Faculty Development Opportunities

If institutions want faculty to invest in a new higher education agenda, institutions must invest in faculty. Faculty cannot be expected to change without access to appropriate professional development opportunities. In short, institutions must provide faculty with the tools to change.

The development of quality faculty begins in graduate schools. Teaching assistantships that include quality supervision and mentoring are important. For graduate students planning to enter the faculty ranks, teaching excellence, like excellence in research, should be part of the graduate degree requirement. Research opportunities involving interdisciplinary problem solving issues will broaden the student's graduate education program and provide at this early faculty career stage an understanding of the value of an interdisciplinary research approach.

Current faculty members should be given the opportunity to evaluate their teaching methods and learn new strategies; study other cultures and incorporate multicultural and international perspectives into courses; and understand better the educational needs of working students. Faculty need access to support staff who can help them master new technologies, overcome technical problems, and design innovative curricula. Institutions should encourage faculty collaboration across disciplines in preparing and delivering courses, and conducting research.

*Recommendation 6.1*

*Professional development programs must be offered to provide faculty with the skills and knowledge to (1) understand the educational needs of the new clientele, (2) develop new curriculum and teaching strategies, and (3) learn to use new technologies.*

## Implementation Strategies

Changing the academic culture will not be easy, but it is critical to higher education's responsiveness in meeting the challenges of the 1990s and 21st century. The reorientation campaign requires faculty professional development opportunities.

**Improve teacher education in graduate programs.** Making teaching skills an important component of a graduate education program will improve both the teaching abilities of future faculty and the status of teaching in the profession.

Several universities provide this orientation for graduate student teaching assistants. An excellent example is the Graduate Teacher Program at the University of Colorado, Boulder. Graduate assistants are expected to take seminars on topics such as teaching methods, preparing syllabi, lecturing, leading discussions, and multiculturalism. By reviewing video tapes of their lectures with experienced teaching faculty, assistants are given the opportunity to evaluate and improve their lecture style and teaching methods. A new component to the program is the lead graduate instructor project. Twenty graduate assistants have been hired to mentor and assist less experienced graduate assistants in their respective departments.

**Enhance existing faculty development programs.** Some universities provide faculty members with an opportunity to evaluate their teaching methods and learn new strategies. Faculty members may need assistance in learning new approaches to teaching and in developing a new curriculum. Technological and academic support staff are needed to provide professional development opportunities. Incentives encouraging and rewarding faculty members for taking new initiatives are beneficial.

Academic evaluation systems (pre- and post-tenure reviews) should be part of a professional development program. They should be sufficiently flexible to accommodate changing patterns and levels of faculty productivity (WICHE, 1992a). North Dakota, for example, is challenging faculty to create a new academic culture by creating a supportive environment. "Partners for Progress," a seven-year plan of the North Dakota University System and the state legislature, helps to create a supportive climate for change and innovation.

**Encourage interdisciplinary activities.** Finding solutions to the problems facing our economy and society demand an interdisciplinary focus. Students must be prepared to apply plural methods of analysis and diverse skills and knowledge to the problems they will face as employees and citizens. To help students develop this perspective, faculty must develop an interdisciplinary approach to scholarship in their teaching and research. Institutions should encourage the collaboration of faculty across disciplines in the preparation and delivery of courses. This may take a variety of forms, including faculty colloquia, coordinated studies programs, paired and clustered courses, and/or the formation of "learning communities" of faculty and students.

The Washington Center for Improving the Quality of Undergraduate Education at The Evergreen State College, for example, supports and coordinates interinstitutional faculty exchanges, the development of interdisciplinary "learning community" programs, conferences, seminars and technical assistance on effective approaches to teaching and learning. Forty-two public and independent institutions in Washington participate in the center, which concentrates on low-cost, high-yield approaches to educational reform, emphasizing better utilization and sharing of existing resources through inter-institutional collaboration.

## A Window of Opportunity

Much has been said and written on the faculty shortage expected to occur in the mid-1990s. A recent WICHE report (1992a) reviewing faculty supply and demand studies concludes that although current projections are suspect, the possibility of a shortage warrants serious study by institutions. To prepare effectively for a possible faculty shortage, institutions must directly address issues affecting the supply of qualified faculty. These issues include increasing the number of minorities and women represented in higher education, adopting more flexible academic personnel policies to address institutional needs, compensating and recruiting faculty in a competitive marketplace, and maintaining faculty vitality and productivity.

Approximately one-half of the nation's existing faculty will be eligible to retire before the turn of the century. This large pool of retirements gives institutions an opportunity to hire faculty members more oriented toward teaching and service and more committed to the campus role and mission. It also provides an opportunity for hiring faculty who more closely reflect the racial and ethnic make up of the nation's population. If colleges and universities are to seize this opportunity to diversify their faculties they will need to adopt aggressive strategies to increase the participation of minorities and women in higher education.

A potential faculty shortage presents other challenges to institutions. Many campuses will find it necessary to adapt their faculty personnel policies to maintain a stable and committed cadre of faculty. Many may find it necessary to change the way they treat existing part-time faculty. Part-time faculty are an important resource, but they are usually treated as second class citizens in terms of compensation, representation in college and university governance, and participation in non-teaching activities. If institutions plan to retain the commitment of these faculty members they will need to restructure compensation policies and institutional practices that exclude them from full membership in the academic community.

Retirement policies may need revising. Colleges and universities may want to encourage some faculty and discourage others from retiring. Flexible personnel policies, designed to reflect the campus role and mission, enable campus administrators to provide appropriate incentives as occasions arise. Maintaining older faculty members raises other issues, most notably how to encourage their continued professional vitality. Throughout their careers, faculty pass through numerous productivity cycles. Post-tenure reviews, which usually have little impact on faculty performance, can be structured to take changing patterns and levels of faculty productivity into account, and encourage and enrich the faculty member's professional development.

Attracting new faculty may require a restructuring of compensation policies. Faculty salaries have not kept up with compensation levels in government and private industry. Consequently, colleges and universities face stiff competition for young scholars. In recent years, so-called "marketplace" compensation policies — paying competitive salaries for young faculty in high demand fields and raiding academic "stars" from other institutions — have eased some of these recruitment problems. However, these policies have created corollary problems. Traditional faculty salary structures have been disrupted, resulting in significant salary differences among faculty. The effect of these policies on valued disciplines which are not currently enjoying a high market demand, and on long-term faculty morale and commitment to the institution, are not yet known.

*Recommendation 6.2*

*Faculty hiring, review, and promotion policies must be consistent with campus roles and missions and support the goals of the strategic agenda.*

## Implementation Strategies

The faculty supply and demand picture of the 1990s presents an opportunity for positive forward movement toward a new era in higher education. To take advantage of this opportunity campuses need to review their recruitment, personnel, and compensation policies. Further, any action directed at a renegotiation of faculty roles and the re-creation of faculty job descriptions must be forged with the full participation of faculty.

**Faculty Job Descriptions**. Institutions can design faculty job descriptions and searches to encourage recruitment of individuals whose backgrounds and professional interests are in concert with the institution's mission, and promote a diversity of talents within the professoriate.

**New Faculty Appointments.** The "bully pulpit" can be and should be a powerful tool for the campus president and academic officer to clearly state the need for appointment of faculty members who support the campus role and mission. Their message can be reinforced by their involvement in the development of faculty position descriptions.

**Adopt flexible academic personnel policies.** Campus needs vary with time and mission. An institution's ability to respond to short-term fluctuations in faculty demand may conflict with its long-term need to maintain a stable faculty. For example, academic policies must have the flexibility to deal with an enrollment decline that may be followed by a rapid enrollment increase. Campus role and mission should be the focal point when developing flexible academic personnel policies.

Campuses should monitor their ability to respond to student needs and interests in a manner consistent with their mission and should develop policies that encourage maintaining a stable and qualified faculty which best meets the needs of the institution. Institutional monitoring requires data on faculty retirement patterns, recruitment patterns, reasons for faculty attrition, use of part-time faculty, and faculty compensation packages by discipline.

**Review compensation and recruitment policies.** Salary equity issues need to be discussed at both the institutional and state levels. Policy studies are needed which review the costs and benefits associated with "marketplace" recruitment packages, and strategies should be designed to lessen the negative impacts of salary inequities on the campus.

**Discover a new definition of scholarship**. Higher education needs a more inclusive view of scholarship, one that recognizes and rewards the diversity of talent that exists within the professoriate. One way to encourage this vision is to change the faculty reward structure. "Creativity contracts" in which faculty, in consultation with institutional leaders, lay out their goals for a three- to five-year period is one approach. Within the limits of the contract, faculty can shift from one scholarly focus to another, without fear of being penalized in promotion and tenure decisions. Another option is multiple professional tracks, each emphasizing teaching, research, and public service to different degrees.

A new vision of scholarship will not emerge without strong leadership from the top. Presidents, through their powers of persuasion, have considerable voice to influence the implementation of new initiatives (e.g., new faculty emphasis on teaching and public service). They are uniquely equipped to create a climate in which new visions of scholarship can emerge. Professional associations also play a critical role in redefining the meaning of scholarship. Through a program with Syracuse University, for instance, several key professional associations are developing new definitions of scholarship for their disciplines.

One of the most important ways in which institutions of higher education can gain faculty commitment is by changing the faculty reward structure. A report by the "University-wide Task Force on Faculty Rewards" at the University of California calling for a restructuring of its faculty reward system was adopted by the systemwide faculty senate. The report recommends that the review of faculty teaching be broadened and include peer reviews; applied and interdisciplinary/integrative research be encouraged and rewarded; faculty be rewarded for their achievements in helping the institution meet diversity and equity goals; and faculty be given the flexibility to emphasize different aspects of scholarship at different points in their careers (University of California, 1991).

Another example is the University of Alaska Anchorage where multiple faculty tracks are offered. Faculty are given the option of emphasizing teaching, research, and public service to different degrees. This arrangement recognizes both the diverse strengths of faculty and the varied needs of the institution.

# CONCLUSION

In the "new economy" of the 1990s and beyond, the United States must adapt to a highly competitive global marketplace where products, resources, information, money, and ideas move rapidly across international boarders. The new economy measures wealth in terms of workers' skills, not natural resources or routine job production. Workers in the new economy must have thorough knowledge of job content and have communication, problem-solving, and interpersonal relations skills. They must be familiar with the languages and cultures of other countries, be skilled in the use of technology, and be adaptable to a constantly changing and multicultural work environment. Workers must be flexible and adaptable in the new economic era.

The demands of the new economy also encompass a complex mix of social issues and demographic trends. They include:

- Dramatic national demographic changes, including a more racially and ethnically diverse labor force;
- Increasing disparity in the quality of life between upper income and lower income populations;
- Perplexing environmental problems such as toxic waste, water and air pollution, the shrinking availability of natural resources, and ozone depletion; and
- A nation and world plagued by poverty, disease, racial tensions, and violence.

Placed in the context of these broader social issues, the new economy poses enormously complex challenges.

These challenges require state and higher education leaders to rethink current state policies and practices affecting colleges and universities. In the preamble to its policy recommendations, the Commission states: "[h]igher education must prepare to meet aggressively the challenges posed by the rapid changes in the economic structure and character of our society."

WICHE believes that the policy recommendations presented in this report must be implemented if these challenges are to be met. The complexity of issues to be addressed and the limitations of state resources require that leaders of higher education and its stakeholders work collaboratively to build a statewide strategic agenda for higher education. As the Commission reminds us, "higher education is the state's most important investment in the future."

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# HIGHER EDUCATION *and the Economy of the West*

**Meeting Economic and Social Challenges: A Strategic Agenda for Higher Education (Policy Recommendations)**, 2A224, 1992, [illegible] $ 15.

This report presents conclusions and recommendations from a two-year study by the Western Interstate Commission for Higher Education (WICHE) on the relationship between higher education and the economy of the West. Much of the analysis and commentary in this report is based on information from five working papers prepared as part of the study. Titles of those working papers, which are available from WICHE, are:

> **A Region of Contrasts: An Educational and Economic Profile of the West, Part I: A Profile of the WICHE Region** (Working Paper #1A), 2A224A, 1992, $5. An overview presentation and analysis of economic, demographic, and educational characteristics in the WICHE region.
>
> **A Region of Contrasts: An Educational and Economic Profile of the West, Part II: WICHE State Profiles** (Working Paper #1B), 2A224F, 1992, $5. A WICHE state by state analysis of economic, demographic, and educational characteristics.
>
> **Exploring the Relationship: A Survey of the Literature on Higher Education and the Economy** (Working Paper #2), 2A224B, 1992, $5. A survey of recent literature on the relationship between higher education and the economy and a commentary on how this relationship can be enhanced.
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> **The Higher Education-Economy Tie: A Sampling of Exemplary Programs in the West** (Working Paper #3), 2A224C, 1992, $5. A review and analysis of more than 30 exemplary programs in the West that illustrate higher education's contribution to the economy.
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